
Cochlearia cochlearioides (Brassicaceae) is a *Rorippa*

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ABSTRACT. The Indian endemic *Cochlearia cochlearioides*, initially described as an *Alyssum*, is transferred to *Rorippa*, and the new combination *R. cochlearioides* (Roth) Al-Shehbaz & Jonsell is proposed.

Rorippa cochlearioides (Roth) Al-Shehbaz & Jonsell is endemic to India. It has been known under different names in *Cochlearia* L. and first appeared as *C. flava* in Roxburgh (1814), but that name remained a nomen nudum until it was validated by Hooker (1852). The species was validly published by Roth (1821) as *Alyssum cochlearioides*, a legitimate name that was placed in synonymy of the later published and illegitimate *C. alyssoides* (De Candolle, 1824). *Alyssum cochlearioides* was then transferred to the monotypic *Trochiscus* by Schulz (1933) and to *Cochlearia* by Maheshwari (1957), but it is evident that neither of these generic assignments is appropriate.

Perhaps the main reason that *Rorippa cochlearioides* has been kept for so long in *Cochlearia* is that it has globose, many-seeded fruits. However, such fruits are found in several species of *Rorippa* Scopoli, including the Asian *R. globosa* (Turczaninow ex Fischer & C. A. Meyer) Hayek, the North American *R. calycina* (Engelmann) Rydberg, *R. columbiae* (Suksdorf ex Robinson) Suksdorf ex T. J. Howell, *R. sphaerocarpa* (A. Gray) Britton, and *R. subumbellata* Rollins, and the eastern Asian–North American *R. barbariifolia* (DC.) Kitagawa (Jonsell, 1971, 1973; Rollins, 1993).

Plants of *Rorippa cochlearioides* grow in lowland, tropical and subtropical areas of India and are restricted to the Gujarat and Gangetic Plains (Bhaumik, 1993). The species has pinnatifid, nonfleshy, auriculate cauline leaves, yellow flowers, spreading floral parts, terete fruits, obscurely veined thin valves, and up to 80 reddish, reticulate seeds per fruit. This combination of characters is found in many species of *Rorippa* and does not occur in any species of *Cochlearia*. Species of *Cochlearia* are distributed in the arctic, subarctic, and northern

latitudes of the north temperate region, and they have more or less fleshy, entire to dentate nonauriculate leaves, white flowers, erect petals and stamens, somewhat narrowly septate fruits, prominently 1-veined thick valves, and often few to several, often tuberculate seeds per fruit. In fact, all the Himalayan species previously assigned to *Cochlearia* have been or should be transferred to other genera.

It is interesting to note that Schulz (1936) placed *Rorippa cochlearioides* (as *Trochiscus*) in the tribe Drabeae, a tribe that he separated from the Arabideae primarily on the basis of silicles versus siliques, although he indicated that *Nasturtium* R. Brown (including *Rorippa*) is an exception in the Arabideae because it often has silicles. By contrast, Bhaumik (1993) placed the species (as *C. cochlearioides*) in the Lepidieae, where *Cochlearia* has been traditionally placed. In our opinion, neither of these tribal dispositions of *Rorippa cochlearioides* reflects its phylogenetic relationships, and the species should be placed in the same tribe as *Rorippa* and *Nasturtium*. To accommodate the species in *Rorippa*, the following new combination is proposed.

***Rorippa cochlearioides* (Roth) Al-Shehbaz & Jonsell, comb. nov.** Basionym: *Alyssum cochlearioides* Roth, Nov. Pl. Sp. 322. 1821. TYPE: India. *Benjamin Heyne s.n.* (holotype, B-W).

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